

## Process for Reduction of Bromine Index in Aromatics

### Claims

1. Process for reduction of bromine index in aromatics, comprising the steps of:
  - (VI) feeding an aromatics feed stream to a distillation column;
  - (VII) subjecting the aromatics feed stream to a distillation process;
  - (VIII) withdrawing an overhead stream and/or a product stream from the column;
  - (IX) subjecting at least a part of the overhead stream and/or the product stream to a treatment in a clay treater; and
  - (X) re-injecting an outlet stream of the clay treater to the aromatics feed stream.
2. Process according to claim 1, characterized in that the aromatics feed stream is fed to the distillation column at a tray about half way up the distillation column.
3. Process according to claim 1 or 2, characterized in that the withdrawn overhead stream is collected in a receiver and any free water is collected in a water boot in the receiver.
4. Process according to any of the preceding claims, characterized in that one part of the withdrawn overhead stream is sent back to the distillation column as reflux.
5. Process according to claim 4, characterized in that another drag part of the withdrawn overhead stream is removed from the receiver and passed over the clay treater.

6. Process according to claim 4 or 5, characterized in that a smaller part of the withdrawn overhead stream is passed over the clay treater as drag stream.
7. Process according to any of the preceding claims, characterized in that the withdrawn overhead stream is cooled and preferably condensed in a heat exchanger prior to being collected in the receiver.
8. Process according to claim 7, characterized in that the condensed drag stream is, prior to entering the clay treater, heated in a heat exchanger and pressurized.
9. Process according to any of the preceding claims, characterized in that the aromatics feed stream comprises benzene, toluene, xylene, heavy aromatics, olefins, diolefines and the like.
10. Process according to any of the preceding claims, characterized in that the aromatics feed stream is fed to the distillation column with a bromine index of about 300 to about 1000, preferably about 500 to about 700.
11. Process according to any of the preceding claims, characterized in that benzene distillate is a product stream withdrawn as side cut at a tray higher than the aromatics feed stream location.
12. Process according to any of the preceding claims characterized in that heat is supplied to the distillation column by a reboiler at the column bottom by heating up a bottom stream having left the distillation column and being at least partly re-introduced.
13. Process according to claim 12, characterized in that the bottom stream comprises toluene, xylene and heavier olefines and aromatics.
14. Process according to any of the preceding claims, characterized in that the aromatics feed stream is fed to the distillation column at a temperature of about 50 to about

100°C preferably of about 75 to about 90°C, and a pressure of about 1 to about 10 barg, preferably about 1 to about 5 barg.

15. Process according to any of the preceding claims, characterized in that the bottom stream leaves the column at a temperature of about 120 to about 170°C, preferably 130 to about 150°C, and the product stream leaves the column at a temperature of about 75 to about 100°C, preferably about 85°C to about 95°C.
16. Process according to any of the preceding claims, characterized in that the withdrawn overhead stream comprises about 97% benzene and has a bromine index of about 250 to about 350, preferably about 300 to about 320.
17. Process according to any of the preceding claims 6 to 16, characterized in that the drag stream of the withdrawn overhead stream to be subjected in the clay treater is removed with a flow rate of about 0.01-0.10, preferably about 0.03-0.05 of reflux flow rate.
18. Process according to any of the preceding claims, characterized in that the drag stream to be subjected in the clay treater is treated in the clay treater at a temperature of about 150 to about 200°C, preferably 170 to about 180°C, and a pressure of about 10 to about 20 barg, preferably about 14 to about 16 barg.
19. Process according to any of the preceding claims, characterized in that the product stream comprises more than 99.90 wt.-% benzene and has a bromine index of about 5 to about 15, preferably about 8 to about 10.
20. Process according to any of the preceding claims, characterized in that a further clay treater is placed upstream the distillation column.
21. Process according to claim 20, characterized in that during a change over procedure at the end of service life an active downstream clay treater is used in place of deactivated upstream clay treater.

22. Process according to any of the preceding claims, characterized in that the product stream is as processed identical as the overhead stream.